REMARKS

(1) Claims 5, 9, 10 and 14-20 are pending in this application, of which claims 5 and 10 have been amended and claims 19 and 20 have been added. Claims 6-8 and 11-13 have been cancelled in this Response.

(2) Claims 5-6, 9-11 and 14-18 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Section 3 of the outstanding Office Action. Claims 5-18 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Section 5 of the outstanding Office Action.

Claims 5 and 10 have been amended. Applicants believe that amended claims 5 and 10 have overcome the rejections by the amendment. Reconsideration of the rejection is respectfully requested.

(3) Claims 5-14 were rejected under 35 U.S.C. §102(e) as being anticipated by Cranor (U.S. Patent No. 7,052,631). Claims 5-14 were rejected under 35 U.S.C. §102(a) as being anticipated by Cranor (U.S. PGPUB 2003/0102467).

The disclosure by Cranor (U.S. Patent No. 7,052,631) is the same as Cranor (U.S. Publication No. 2003/0102467). The application numbers of the two references are the same.

The Examiner points out Example 4 of Cranor, disclosing a 50/50 mixture of propylene glycol dibenzoate (PGDB) and acetyltributyl citrate (ATBC). Col. 7, lines 56-57 of U.S. Patent No. 7,052,631.

Amended claims 5 and 10 recite comprising "an acetyl tributyl citrate at an amount of 70% by volume or more." The rejection under 35 U.S.C. §102(e)/(a) is not supported by Cranor. Reconsideration of the rejections is respectfully requested.

(4) Claims 5-14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cranor. Claims 5-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cranor further in view of Zweing et al., Roberts et al., and/or Crigg.

(i) Cranor merely teaches a 50/50 mixture of propylene glycol dibenzoate (PGDB) and acetyltributyl citrate (ATBC). Cranor does not teach improving the luminescent properties by increasing acetyltributyl citrate. It is unpredictable for one skilled in the art that the luminescent properties can be improved by increasing the amount of acetyltributyl citrate. Rather, as pointed out by the Examiner, Omniglow employs butyl benzoate (page 7 of the outstanding Office Action). One skilled in the art may increase the amount of glycol dibenzoate (PGDB). There is no motivation to increase the amount of acetyltributyl citrate (ATBC) from the

Cranor's teaching of a 50/50 mixture of propylene glycol dibenzoate (PGDB) and acetyltributyl citrate (ATBC).

(ii) In addition, Applicants herewith file the 3rd Declaration under 37 CFR 1.132. *See* the results of Tests 6-8 in the 3rd Declaration. In the 3rd Declaration, Sample 8 included PGDB/ATBC (50/50). Samples 9-14 included ATBC/benzyl benzoate (BeB) at a ratio from 100/0 to 50/50.

(a) In Test 6, comparing Sample 8 with Sample 14, Sample 14 improves the luminescent intensity especially at the time of 2 to 120 minutes. It is unpredictable to one skilled in the art that the luminescent intensity is improved by replacing glycol dibenzoate (PGDB) with benzyl benzoate (BeB). *See* the 3rd Declaration, §(9)(i).

None of the references teaches that replacement of glycol dibenzoate (PGDB) with benzyl benzoate (BeB) is a routine work of one skilled in the art. Mr. Yamate states that the results obtained by replacement of glycol dibenzoate (PGDB) with benzyl benzoate (BeB) were unexpected. *See* the 3rd Declaration, §(9)(i).

Moreover, comparing Sample 8 with Samples 9-12, the luminescent intensity of Samples 9-12, adding BeB at an amount of 30% by volume or less, was much more

improved. Mr. Yamate states that the results obtained by adding BeB at an amount of 30% by volume or less were unexpected. *See* the 3rd Declaration, §(9)(ii).

(b) In Test 7, Mr. Yamate tested the decomposition rates of CPPO during storage. As Mr. Yamate states, the decomposition of CPPO in Sample 8 was more than that in Samples 9-14. Mr. Yamate states that the decomposition of CPPO in Samples 9-12 was unexpectedly inhibited compared with that in Sample 8. *See* the 3rd Declaration, §(10).

(c) In Test 8, Mr. Yamate tested the decay of luminescent intensity of the stored samples. As Mr. Yamate states, comparing Sample 8 with Sample 14, Sample 14 improved the luminescent intensity especially at the time of 2 to 120 minutes. The results obtained by replacement of glycol dibenzoate (PGDB) with benzyl benzoate (BeB) were unexpected. Benzyl benzoate was advantageous in the storage properties compared with glycol dibenzoate (PGDB). *See* the 3rd Declaration, §(11)(i).

Comparing Sample 8 with Samples 9-12, the luminescent intensity of Samples 9-12 was improved compared with that of Sample 8 especially at the time of 2 to 120 minutes. The results obtained by adding BeB at an amount of 30% by volume or less were unexpected. Benzyl benzoate including at an amount of 30% by volume or less was

advantageous in the storage properties compared with glycol dibenzoate (PGDB). *See* the 3rd Declaration, §(11)(ii).

(d) Also, Table 4 in the specification lists the results of luminescent intensity when using Compositions L-V. Compositions L-O included ATBC/butyl benzoate at a ratio of 100/0 to 70/30, and Composition Q included ATBC/butyl benzoate at a ratio of 50/50.

Comparing Sample 8 with Composition Q, Composition Q improved the luminescence especially at the time of 2 minutes. It is unpredictable to one skilled in the art that the luminescent intensity is improved by replacing glycol dibenzoate (PGDB) with butyl benzoate. None of the references teaches that replacement of glycol dibenzoate (PGDB) with butyl benzoate is a routine work of one skilled in the art. Mr. Yamate states that the results obtained by replacement of glycol dibenzoate (PGDB) with butyl benzoate were unexpected. *See* the 3rd Declaration, §(10)(iii).

Moreover, comparing Sample 8 with Compositions L-O, the luminescent intensity of Compositions L-O, adding butyl benzoate at the claimed amount, was much more improved than that by merely replacing glycol dibenzoate (PGDB) with benzyl benzoate. Mr. Yamate states that the results obtained by adding butyl benzoate at the claimed amount were unexpected. *See* the 3rd Declaration, §§(10)(v)-(vi).

(iii) The results showing unexpected results are commensurate in scope with claims 5, 10, 19 and 20. Tests 6-8 in the 3rd Declaration show unexpected results by using acetyl tributyl citrate, and benzyl benzoate or butyl benzoate at an amount of 30 % or less.

(iv) The Declarations state that the results are unexpected. "Mere improvement in properties does not always suffice to show unexpected results. In our view, however, when an applicant demonstrates *substantially* improved results, as Sony did here, and *states* that the results were *unexpected,* this should suffice to establish unexpected results *in the absence of* evidence to the contrary." In re Sony, 34 U.S.P.Q.2d 1684, 1688 (C.A.F.C. 1995). Emphasis is original.

The Examiner states that "differences alone are inadequate to establish nonobviousness; the differences must be statistically significant, unexpected and of practical significance. The statement by the inventor in the declaration "should suffice to establish unexpected results *in the absence of* evidence to the contrary." *See* In re Sony.

Thus, claims 5, 10, 19 and 20 are not obvious over Cranor because of the unexpected results. None of Zweing et al., Roberts et al., and/or Crigg further teach modifying

Cranor to obtain the invention as recited in the claims. Reconsideration of the rejection is respectfully requested.

(5) Claims 5-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Omniglow Corporation (WO 94/19421) as applied to claims 5-6 above, and further in view of Zweing et al. (U.S. Patent No. 3,729,426), Roberts et al. (U.S. Patent No. 3,701,738), and/or Crigg (U.S. patent No. 3,560,395). *See* Section 11.

(i) The Examiner points out that Examples 8 and 9 of Omniglow disclose oxalate/fluorescent component including butyl benzoate. Section 18 of the outstanding Office Action.

In this respect, *see* the 3rd Declaration, Tests 3-5. The results in Test 3 in the 3rd Declaration show that Sample 7 using acetyltributyl citrate is superior to Sample 6 using butyl benzoate. *See* Test 3 in the declarations. Mr. Yamate states that the results are unexpected.

(ii) In addition, in Test 4, Samples 6-7 were kept at a temperature of 60℃ for a period of one week, and then, the concentration of CPPO in the Samples was measured. The results of Test 4 show that the concentration of CPPO in Sample 6 was decreased by 17%, whereas the concentration of CPPO in Sample 7 was decreased by 1%. Mr. Yamate concludes that the

decomposition of CPPO in Sample 6 was much more than that in Sample 7 and the results are unexpected.

(iii) Moreover, in Test 5, the decay of the luminescent intensity was measured with respect to the stored samples. The results listed in Table 4 shows that the luminescence of Sample 6 was lower than Sample 7 by 3% to 82%. Mr. Yamate states that in particular, the luminescence of Sample 6 was significantly lower than Sample 7 after 180 minutes, and the results are unexpected.

(iv) None of the cited references teach improving storage properties by using acetyltributyl citrate as a solvent for the fluorescent/oxalate composition. In particular, Omniglow merely teaches a solvent for a peroxide composition. Omniglow does not teach or suggest using acetyltributyl citrate in order to obtain good storage properties.

"Mere improvement in properties does not always suffice to show unexpected results. In our view, however, when an applicant demonstrates *substantially* improved results, as Sony did here, and *states* that the results were *unexpected,* this should suffice to establish unexpected results *in the absence of* evidence to the contrary." In re Sony, 34 U.S.P.Q.2d 1684, 1688 (C.A.F.C. 1995). Emphasis is original.

The Examiner states that "differences alone are inadequate to establish nonobviousness; the differences must be statistically significant, unexpected and of practical significance. The statement by the inventor in the declaration "should suffice to establish unexpected results *in the absence of* evidence to the contrary." *See* In re Sony.

In view of the above, claims 5, 10 and 19 and 20 are not obvious over the cited references.

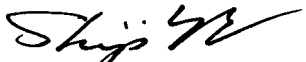
(6) In view of the aforementioned amendments and accompanying remarks, Applicant submits that that the claims, as herein amended, are in condition for allowance. Applicant requests such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned representative at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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